

REMARKS

This is a Response to the Office Action mailed April 26, 2004, in which a three (3) month Shortened Statutory Period for Response has been set, due to expire July 26, 2004. Eighty-five (85) claims, including three (3) independent claims, were previously paid for in the application. Claims 1-41, 50, 54-55, 74 and 82-83 have been canceled. Claims 42-44, 49, 51, 57-65, 78, 81 and 84-85 have been amended. New claims 86-96 have been added. No new matter has been added to the application. There are now 49 claims pending in the application, including 4 independent claims. A check in payment for 1 additional independent claim is filed concurrently herewith. The Commissioner is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090. Claims 42-49, 51-53, 56-73, 75-81 and 84-96 are pending.

With regard to claims 42-43, 46-73, 75-81 and 84-85, Applicants previously elected Species A, electrospray. With regard to claims 42-69, 73, 75-81 and 84-85, Applicants previously elected species B, sugars. Claim 70 is within the scope of claim 42 and was unelected. Thus, claim 70 has not been examined. In the event claim 42 is determined to be allowable, Applicants respectfully request that claim 70 be examined for its full scope.

Objections to the Oath

The Examiner objected to the oath for failing to identify the city and either state or foreign country of residence of each inventor. Applicants respectfully note that the information was contained in the Application Data Sheet filed with the Application in accordance with 37 C.F.R. § 1.76. Thus, Applicants believe the Application is in compliance with 37 C.F.R. § 1.63(c).

Rejections Under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 43, 49, 57-65, 81 and 84-85 under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of Applicant's invention. Claims 43, 49, 57-65, 81 and 84-85 have been amended to more

particularly point out and distinctly claim the subject matter that the Applicants regard as their invention.

Care has been taken to avoid the introduction of new matter. With regard to claim 42, support for the amendment can be found on page 6, lines 10-22. With regard to claim 49, support for the amendment can be found on page 4, lines 28-29, page 7, lines 1-13 and page 7 line 29 through page 8, line 1. With regard to claim 51, support for the amendment can be found on page 6, lines 21-22. With regard to claim 65, support for the amendment can be found on page 10, lines 7-9.

U.S. Patent No. 5,091, 204 Issued to Ratner, et al Does Not Anticipate the Claims

The Examiner rejected claims 42-43, 52, 57, 60-65, 67, 73 and 84-85 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,091,204 issued to Ratner, et al. ("the '204 Patent"). The Examiner also rejected claims 49, 58-59 and 78 under either 35 U.S.C. § 102(b) as anticipated by the '204 Patent or alternatively under 35 U.S.C. § 103(a) as obvious over the '204 Patent.

The disclosed embodiment of the invention will now be discussed in comparison to the applied reference. Of course, the discussion of the disclosed embodiment, and the discussion of the differences between the disclosed embodiment and the subject matter described in the applied reference, do not define the scope or interpretation of any of the claims. Instead, such discussed differences merely help the Examiner to appreciate important claim distinctions discussed thereafter.

The exemplary embodiments of Applicants' invention are directed, among other things, to plasma treating and depositing ionized molecules on the surface of an object in a vacuum system. The embodiments are particularly useful for plasma treating and depositing bio-molecules on surgical instruments or sutures. Bio-molecules tend to be large molecules.

The '204 Patent discloses a process for making a modified polymeric intraocular lens material. In an exemplary embodiment, a substrate material is placed in a chamber containing a gaseous perfluoropropane monomer. An electric field ionizes the polymer gas creating a fluorocarbon glow-discharge plasma. The glow-discharge plasma reacts with the

polymer substrate resulting in the simultaneous deposition and polymerization of the fluorocarbon groups and their attachment onto the substrate groups. Thus, the deposition of the polymerized material onto the surface occurs while the surface of the object is being plasma-treated. This changes the characteristics of the molecules, which are in a glow-discharge plasma. In particular, the process discussed in the '204 Patent does not direct a beam of ionized molecules at the object, but instead exposes the object to a plasma. Attempting to deposit the molecules in a plasma would destroy the molecules of interest in Applicants' invention, such as sugars. Applicants further respectfully traverse the Examiner's contention that a substrate would inherently be heated during the process disclosed in the '204 Patent.

Turning to the language of the specific claims, claim 42 as amended recites: "depositing ionized molecules on the surface of the object in the vacuum system by directing a beam of ionized molecules at the object." The '204 Patent does not disclose "directing a beam of ionized molecules at the object." Instead, the '204 Patent discloses exposing the object to a glow-discharge plasma of polymerized molecules.

With regard to the Examiner's obviousness contentions, it would not be obvious to combine the method of claim 42 with the method discussed in the '204 Patent because the molecules in the '204 Patent are in a glow-discharge plasma, which, as discussed above, changes the characteristics of the molecules. In particular, a beam of ionized molecules cannot exist in a glow-discharge plasma. Thus, modifying the '204 Patent to use a beam of ionized molecules as the source of the ionized molecules would not be possible because the glow-discharge plasma would disrupt the beam. Further, if the '204 Patent were modified to deposit the ionized molecules in the absence of a plasma (there is no suggestion in the '204 Patent to do so) the principles of operation of the '204 Patent, which includes polymerization of ionized monomers in a plasma, would be changed, which means that the modification is not obvious. See MPEP 2143.01.

Claims 43, 49, 52, 57-65, 67, 73, 78 and 84-85 depend from claim 42. Accordingly, Applicants respectfully submit that claims 42-43, 49, 52, 57-65, 67, 73, 78 and 84-85 are neither anticipated nor rendered obvious by the '204 Patent.

U.S. Patent No. 5,002,794 Issued to Ratner, et al. Does Not Anticipate the Claims

The Examiner rejected claims 42-44, 51-52, 57, 59-67, 73, 81 and 84-85 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,002,794 issued to Ratner, et al. (“the ’794 Patent”). The Examiner also rejected claims 49 and 58 under either 35 U.S.C. § 102(b) as anticipated by the ’794 Patent or alternatively under 35 U.S.C. § 103(a) as obvious over the ’794 Patent.

The ’794 Patent discusses controlling the temperature difference between a substrate and a plasma chamber in order to improve the characteristics of films grown on the substrate.

As noted above, claim 42 recites: “depositing ionized molecules on the surface by directing a beam of ionized molecules at the object.” There is no discussion or suggestion in the ’794 Patent of directing a beam of ionized molecules at an object. To the extent the Examiner suggests the ’794 Patent in view of U.S. Patent No. 6,131,580 issued to Ratner, et al. (“the ’580 Patent”) renders claims 49 and 58 obvious, the Examiner concedes that the ’580 Patent does not disclose any coating techniques that employ ionized molecules. Claims 43-44, 49, 51-52, 57-67, 73, 81 and 84-85 depend from claim 42. Accordingly, Applicants respectfully submit that claims 42-44, 49, 51-52, 57-67, 73, 81 and 84-85 are neither anticipated by the ’794 Patent nor rendered obvious by the ’794 Patent in view of the ’580 Patent.

The Physics of Plasma Polymer Deposition by Schram, et al. Does Not Anticipate the Claims

The Examiner rejected claims 42, 52-53 and 60 under 35 U.S.C. § 102(b) as anticipated by The Physics of Plasma Polymer Deposition by Schram, et al. (“Schram”).

Schram discusses producing a glow-discharge plasma separate from a plasma treatment. The molecules, however, are nonetheless polymerized and deposited on an object by a glow-discharge plasma. Thus, Schram does not disclose “depositing ionized molecules on the surface of the object in the vacuum system by directing a beam of ionized molecules at the object” as recited. Claims 52-53 and 60 depend from claim 42. Accordingly, Applicants respectfully submit that claims 42, 52-53 and 60 are not anticipated by Schram.

Ultrathin Films by Ratner Does Not Anticipate the Claims

The Examiner rejected claims 42-43, 56-61, 78 and 84-85 under 35 U.S.C. § 102(b) as anticipated by Ultrathin Films by Ratner (“Ratner”). Ratner discusses deposition of polymeric overlays using a glow-discharge plasma. Ratner does not teach or suggest “depositing ionized molecules on the surface of the object in the vacuum system by directing a beam of ionized molecules at the object” as recited in claim 42. Claims 43, 56-61, 78 and 84-85 depend from claim 42. Accordingly, Applicants submit that claims 42-43, 56-61, 78 and 84-85 are not anticipated by Ratner.

U.S. Patent No. 5,944,753 Issued to Galin, et al., In View of Other References, Does Not Render the Claims Obvious

The Examiner rejected claims 42-43, 45-48, 51-53, 56-65, 67-69, 71-73, 75-81 and 84-85 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,944,753 issued to Galin, et al (“Galin”), in view of: U.S. Patent No. 6,451,871 issued to Winterton, et al. (“Winterton”) and U.S. Patent No. 4,993,645 issued to Buschor (“Buschor”); U.S. Patent No. 6,589,655 issued to Chabrecek et al. (“Chabrecek”); U.S. Patent Pub. No. 2002/0007869 (“Pui I”); U.S. Patent Pub. No. 2003/0143315 (“Pui II”); or Morozov, et al., *Electrospray Deposition as a Method to Fabricate Functionally Active Protein Films*, 71 Anal. Chem. 1415-1420 (1999) (“Morozov”). Applicants respectfully traverse the Examiner’s contention that Galin in view of the other cited references renders the claims obvious.

Claim 42 as amended recites: “plasma-treating the surface of the object in the vacuum system; and depositing ionized molecules on the surface of the object in the vacuum system by directing a beam of ionized molecules at the object.” The Examiner points to Galin as disclosing plasma treatment and to the other references as disclosing electrospray. The Examiner does not point to any suggestion in any of the references for combining plasma treating of an object in a vacuum with depositing ionized molecules by directing a beam of ionized molecules at the object in the vacuum as claimed. See MPEP 2143.01.

Winterton is directed to contact lens materials and teaches away from plasma treatment as undesirable because it is expensive and requires a separate drying step. Winterton makes no mention of directing a beam of ionized molecules at an object in a vacuum system.

Buschor makes no mention of a vacuum system. While Chabrecek mentions vacuum vapor deposition, it makes no mention of directing a beam of ionized molecules at an object in a vacuum as claimed. Pui I and Pui II do not discuss plasma treatment in a vacuum system. In addition, Pui II mentions plasma treatment as one of several alternative but problematic treatment methods, and thus teaches away from the present invention. References must be considered in their entirety, including those portions that argue against obviousness. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 230 U.S.P.Q. 416, 420 (Fed. Cir. 1986). Further, Pui II is a publication of a continuation-in-part of Pui I and was filed after the filing date of the present application. Thus to the extent Pui II is cited for a disclosure not supported by Pui I, it is not prior art under 35 U.S.C. § 102(e). Morozov makes no mention of a vacuum system.

Further, as noted above, one of skill in the art would not be motivated to combine plasma treatment with directing a beam of ionized molecules because the plasma would alter the characteristics of the ionized molecules.

Thus Galin, taken in combination with any or all of the cited references, fails to teach or suggest “plasma-treating the surface of the object in the vacuum system; and depositing ionized molecules on the surface of the object in the vacuum system by directing a beam of ionized molecules at the object,” as recited in claim 42. Claims 43, 45-48, 51-53, 56-65, 67-69, 71-73, 75-81 and 84-85 depend from claim 42. Accordingly, Applicants respectfully submit that Galin in view of Winterton and Buschor, Chabrecek, Pui I, Pui II or Morozov, does not render claims 42-43, 45-48, 51-53, 56-65, 67-69, 71-73, 75-81 and 84-85 obvious.

U.S. Patent No. 5,849,368 Issued to Hostettler, et al., In View of Other References, Does Not Render the Claims Obvious

The Examiner rejected claims 42-43, 45-48, 51-53, 56-69, 71-73, 75-81 and 84-85 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,849,368 issued to Hostettler, et al. (“Hostettler”), in view of: Winterton and Buschor; Chabrecek; Pui I; Pui II; or Morozov.

Applicants respectfully traverse the Examiner's contention that Hostettler is an appropriate primary reference. Hostettler does not teach or suggest "depositing ionized molecules on the surface of the object in the vacuum system by directing a beam of ionized molecules at the object," as recited in claim 42. As discussed above, one of skill in the art would not be motivated to combine the glow-discharge plasma-treating of Hostettler with directing a beam of ionized molecules at the object because the plasma would change the characteristics of the ionized molecules. Hostettler further teaches away from the present invention because it teaches that the ionized molecules are deposited on the object by successive plasma treatments. There is no suggestion in Hostettler that the second plasma treatment should be replaced with directing a beam of ionized molecules at the object. Further, modifying Hostettler in this fashion would change the principles of operation of Hostettler, which includes polymerization of ionized molecules in a plasma, which means that the modification is not obvious. See MPEP 2143.01. Applicants also note that the cited portions of Hostettler do not appear to generally suggest spraying, as contended by the Examiner. The other cited references are discussed above and do not supply the teachings missing from Hostettler.

Thus Hostettler, taken in combination with any or all of the cited references, fails to teach or suggest "plasma-treating the surface of the object in the vacuum system; and depositing ionized molecules on the surface of the object in the vacuum system by directing a beam of ionized molecules at the object," as recited in claim 42. Claims 43, 45-48, 51-53, 56-69, 71-73, 75-81 and 84-85 depend from claim 42. Accordingly, Applicants respectfully submit that Hostettler in view of Winterton and Buschor, Chabrecek, Pui I, Pui II or Morozov, does not render claims 42-43, 45-48, 51-53, 56-65, 67-69, 71-73, 75-81 and 84-85 obvious.

Conclusion

Overall, the cited references do not singly, or in any motivated combination, teach or suggest the claimed features of the embodiments recited in independent claims 42, 88, 93 and 95 and thus the independent claims are allowable. The claims which depend from claims 42, 88, 93 and 95 are allowable because they depend from allowable claims, and also because they include additional limitations. If the undersigned attorney has overlooked a relevant teaching in

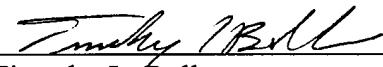
any of the references, the Examiner is requested to point out specifically where such teaching may be found.

In light of the above amendments and remarks, Applicants respectfully submit that all pending claims are allowable. Applicants, therefore, respectfully request that the Examiner reconsider this application and timely allow all pending claims. Examiner Padgett is encouraged to contact Mr. Boller by telephone to discuss the above and any other distinctions between the claims and the applied references, if desired. If the Examiner notes any informalities in the claims, she is encouraged to contact Mr. Boller by telephone to expediently correct such informalities.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
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